

Western Electric Co., Incorporated,
Engineering Dept.,
New York.

(3 Pages) Page #1.
Issue 3 - BT-431323.
Replacing all previous issues.
July 5, 1921.

METHOD OF OPERATION
LINE CIRCUIT

Blank Incoming - For Use as Intercepted Line - Full Mechanical Power Driven System.

GENERAL DESCRIPTION

1. This circuit is used as an intercepted blank incoming trunk, in a full mechanical power driven office. It is selected by a local inter-office or cordless incoming selector, when the called line terminates on a non-equipped or blank final frame.

2. When this trunk is seized by an incoming trunk, the trunk lamp lights at the intercepting position. When the plug of an answering cord is inserted in the answering jack, the lamp is extinguished, and the talking connection is established to the calling subscriber.

DETAILED DESCRIPTION

LOCAL OR INTER-OFFICE CALLS

3. When the tip, ring and sleeve terminals of this circuit are seized by a local or inter-office incoming trunk, battery through the primary winding of the line relay in the associated incoming circuit is connected to the R lead, operating the L relay. A circuit is also closed from battery through the 700 ohm and 500 ohm resistances in series break contact of the CO relay, over the tip of the fundamental circuit, through the stepping relay in the sender circuit, back over the ring to ground in the incoming trunk. The L relay operated, closes a circuit from battery through the R magnet, cam B break contact of the transfer key, to ground, advancing the switch to position 2, the A cam advancing it to position 1 thus making a complete revolution as a sender run-down. The RD relay operates when the contacts of the low speed interrupter make, in a circuit from battery through a make contact of the L relay, primary winding of the RD relay, break contact of the transfer key, to ground through the closed contacts of the interrupter. The RD relay operated, locks to ground on the interrupter, for a period of 6.4 seconds, thus allowing enough time for a sufficient number of impulses to be sent back to run down the sender. The operation of the RD relay also operates the TK relay which locks to ground on the sleeve of the incoming trunk.

4. NOTE: Interrupter "F" has 7 second cycles and is closed for 0.4 seconds. Interrupter "B" has 7 second cycles and closes at the same time as "F" and remains closed for 6.4 seconds.

5. As the switch advances from position 1 to position 18, ground from cam C is intermittently connected to the tip side of the fundamental circuit, through the break contact of the transfer key, and make contact of the RD relay, successively short-circuiting and permitting the re-operation of the stepping relay in the associated sender circuit. When the "B" contact of the interrupter opens, the RD relay releases, allowing the CO relay to operate from ground on the armature of the

RD relay, winding of the CO relay, to battery on the armature of the TK relay. The CO relay operated, (a) Disconnects the battery and ground from the tip and ring of the fundamental circuit thus causing the incoming circuit to advance (b) Opens the circuit through the L relay, releasing the relay (c) Closes a circuit from battery on its armature, break contact of the SL relay, 2-G trunk lamp, to ground through the auxiliary signal circuit, lighting the trunk lamp and (d) Connects the tip and ring sides of the trunk through to the answering jack at the intercepting position.

6. When the plug of an answering cord is inserted in the answering jack, the SL relay operates through its primary winding, extinguishing the trunk lamp and locks through its secondary winding to battery on the make contact of the CO relay.

CORDLESS CALL

7. When this trunk is seized by a cordless incoming trunk, it is held busy by ground on the S terminal from the incoming trunk. The tip side of the fundamental circuit is also closed from battery, through the 700 and 500 ohm resistance, break contact of the CO relay, over the tip side of the fundamental circuit, to ground through the stepping relay in the associated cordless sender circuit. The ringside of the fundamental circuit is also closed from battery through the 1200 ohm winding of the SH relay in the associated sender selector circuit, over the ringside, break contact of the CO relay, to ground through the winding of the L relay which operates. From this point on, the operation of the circuit is the same as previously described in paragraphs 3 to 6 inclusive.

DISCONNECT

8. When the receiver at the calling station is replaced on the switchhook, the incoming trunk switch advances, in turn removing the ground from the sleeve of this trunk, releasing the TK relay. The TK relay released, closes a circuit from the ground on the armature of the SL relay, break contact of the TK relay, to the sleeve terminal of the trunk, thus holding the trunk busy until the plug of the cord is removed from the answering jack. The release of the TK relay also opens the circuit through the CO relay, which releases, in turn opening the holding circuit through the secondary winding of the SL relay.

9. When the plug of the answering cord is withdrawn from the jack, the SL relay releases, in turn disconnecting the ground from the sleeve terminal, thus restoring the circuit to normal.

10. Should the plug of the cord be withdrawn from the answering jack, before the called subscriber has replaced the receiver on the switchhook, the SL relay is held operated from battery on the armature of the CO relay, thus preventing the trunk lamp from relighting.

(3 Pages) Page #3.
 Issue 3 - BT-431323.
 Replacing all previous issues.
 July 5, 1921.

CIRCUIT REQUIREMENTS

	<u>OPERATE</u>	<u>NON-OPERATE</u>	<u>RELEASE</u>
E563 (TK)	Test .015 amp. Readj. .008 amp.	Test .0047 amp. Readj. .005 amp.	
E572 (CO)	Test .019 amp. Readj. .016 amp.	Test .0095 amp. Readj. .010 amp.	
E644 (RD)	Test .036 amp. Primary winding 1000 ohms	Test .015 amp. Readj. .016 amp.	
Secondary winding 1000 ohms	Test .036 amp.		
E647 (SL)	Test .063 amp. Primary winding 50 ohms	Test .011 amp. Readj. .012 amp.	
Secondary wdg. 500 ohms	Hold Test .038 amp.		
E658 (SL)	Test .026 amp. Primary wdg. 500 ohms	Test .0038 amp. Readj. .004 amp.	
Secondary 5 wdg. 500 ohms (L)	Test .035 amp.		
E1747	Test .021 amp. Readj. .019 amp.	Test .001 amp. Readj. .002 amp.	